Pranjal Sahu

Contact Information

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Research Interests

Deep Learning, Computer Vision, Computer Graphics and its application in Biomedical Imaging such as De-noising, Bio-markers detection, Volume reconstruction.

Education

Stony Brook University, 3.87

Ph.D. Student in Computer Science (2016-2021 expected)

- Dissertation Topic: Deep Learning in Biomedical Imaging
- Advisor: Dr. Hong Qin

Indian Institute of Technology Kharagpur, 8.35

B.Tech.(Hons) in Computer Science, 2013

- Thesis Topic: Object tracking in video and its application in Healthcare.
- Advisor: Dr. A.K. Majumdar

Selected Publications

Pranjal Sahu, Yiyuan Zhao, Parmeet Bhatia, Luca Bogoni et al. *Self-supervised Structure Correction for Robust Lung Segmentation in Presence of Tumors,* IEEE Journal of Biomedical and Health Informatics, J-BHI, 2019. (Submitted)

Pranjal Sahu, Hailiang Huang, Wei Zhao, and Hong Qin. *Using virtual digital breast tomosynthesis for de-noising of low-dose projection images,* International Symopsium on Biomedical Imaging, ISBI 2019.

Pranjal Sahu, Dantong Yu, Mallesham Dasari, Fei Hou and Hong Qin. *A Lightweight Multi-section CNN for Lung Nodule Classification and Malignancy Estimation,* IEEE Journal of Biomedical and Health Informatics, J-BHI, 2018.

Pranjal Sahu, Dantong Yu and Hong Qin. *Apply lightweight deep learning on internet of things for low-cost and easy-to-access skin cancer detection,* Medical Imaging: Imaging Informatics for Healthcare, Research, and Applications, International Society for Optics and Photonics, SPIE, 2018 **(Best Demo Award)**.

Pranjal Sahu, Dantong Yu and Kevin Yager, Mallesham Dasari and Hong Qin. *In-Operando Tracking and Prediction of Transition in Material System using LSTM,* International Workshop on Autonomous Infrastructure for Science, HPDC, 2018.

Scientific Research Experience

Robust semantic segmentation of Lung CT. Advisor: Dr. Yiyuan Zhao
Siemens Healthineers, Malvern, PA. (2019)

Autonomous Infrastructure for Transition Prediction. Advisor: Dr. Dantong Yu
Brookhaven National Laboratory, Computational Science Initiative (2017)

Work Experience

2019-2019	Summer Internship	Siemens Healthineers, Malvern, PA, USA
2015-2015	Data Scientist	HT Media, Gurgaon, India
2013-2015	Software Engineer	Samsung Research Institute, Noida, India

Honors and Awards

2018	Best Demo Award in SPIE Medical Imaging Conference
2016–2017	Computer Science Chairman Fellowship, Stony Brook University
2007	Mahatma Hansraj merit award in CBSE Board 2006-07
2005	Represented (C.G.) state in National Children Science Congress

Teaching Experience

Spring	2017	Teaching Assistant, Computer Graphics (Undergraduate)
Spring	2017	Teaching Assistant, Medical Imaging (Undergraduate)

Other Talks and Publications

Deep Learning applications in Medical Imaging, at Bell labs, Murray Hill (2019).

Mallesham Dasari, Arani Bhattacharya, Santiago Vargas, **Pranjal Sahu**, Aruna Balasubramanian, Samir Das. *Streaming 360 degree Videos using Super-resolution*, IEEE INFOCOM 2020.

Hailiang Huang, **Pranjal Sahu**, Xiaoyu Duan, Wei Zhao. *Denoising and Scatter Correction for Contrast-Enhanced Digital Breast Tomosynthesis*, RSNA 2019, Chicago.

Xiaoyu Duan, **Pranjal Sahu**, Hailiang Huang, Wei Zhao. *Scatter correction with deep learning approach for contrast enhanced digital breast tomosynthesis (CEDBT) in both cranio-caudal (CC) view and mediolateral oblique (MLO) view*, IWBI 2020 **(Oral)**.

Na Song, Daniela Craciun et al. *Protein Shape Retrieval,* Eurographics Workshop on 3D Object Retrieval, 3DOR 2017.

Reviewer

Journal of Medical Imaging (JMI), Ultrasonics Journal

Graduate Coursework

- ❑ Computer Graphics
- ❑ Computer Vision
- ❑ Convex Optimization
- ❑ Artificial Intelligence
- ❑ Analysis of Algorithms
- ❑ Computer Networks

Relevant Skills

Languages:	Python, C++, C, Matlab
Deep Learning:	Keras, Tensorflow, Pytorch
Libraries:	OpenCV, Android SDK, Numba, Nltk
IDEs:	Jupyter Notebook, Eclipse, Android Studio

Academic Projects

Facial Action Unit Detection, Computer Vision, (Tensorflow).

Stochastic Quasi-Newton Optimization for Deep Learning, Convex Optimization

Byzantine Chain Replication, Asynchronous Systems, (DistAlgo, Python)

Identification of user actions on Android apps, Computer Networks, (Android)

Process Knowledge extraction, Artificial Intelligence, (Python)

Point Cloud Triangulation, Computer Graphics, (OpenGL, C++)

Automatic construction of 3D models from Architectural Line drawings, Computer Graphics (OpenGL, C++).

Extra curriculars

- ❑ Silver medal in Inter Hall Thermocol and clay modelling at IIT Kharagpur
- ❑ Member of Azad Hall of Residence Fine Arts team at IIT Kharagpur